

BUSINESS AND PROFESSIONAL

One cent the word each time.

PHYSICIANS.

DR. ERNEST A. WOODS—Practice limited to eye, ear, nose and throat. Office hours, 10 to 12 and 2 to 5. Swadburg Bldg., Ashland, Ore. 73-t

DR. J. J. EMMENS—Physician and Surgeon. Practice limited to eye, ear, nose and throat. Glasses supplied. Oculist and aurist for S. P. R. R. Offices, M. F. and H. Bldg., Medford, Ore. Phone 26

DR. MATTIE B. SHAW—Residence and office, 108 Pioneer avenue. Telephone 23. Office hours, 10 to 12 a. m.; 2 to 5 p. m., only.

DR. H. M. SHAW—Physician and Surgeon. Special attention Eyes, Ears, Nose, Throat. Glasses fitted. Room 6, Mills-McCall Block. Phone 79 or 23.

DR. G. C. PHETTERPLACE—Dentist—successor to W. E. Buchanan. Special attention given to straightening and care of children's teeth. Office hours, 9 to 12 and 1:30 to 5. Office phone 151. Residence phone 201-J. Camps Building, Ashland, Oregon. 45tf

CHIROPRACTORS.

DR. E. B. ANGELL—Chiropractic and Electro-Therapy. The combination does wonders. First Nat'l Bank Bldg. Phone 48-142. House Calls

VETERINARY

DR. J. P. CHISHOLM—Graduate veterinary. Located on the Gill property, west of the Normal School on Walker Ave.

CONVALESCENT HOME

CONVALESCENT HOME—Good cheer. Good care. Good food. Terms reasonable. 153 Granite St. Phone 41-1R. 306-1mo

TRANSFER AND EXPRESS.

FOR prompt and careful service, auto trucks or horse drays, call Whittle Transfer Co. Phone 117. Office, 89 Oak street near Hotel Ashland. 56tf

T. L. POWELL—GENERAL TRANSFER—Good team and motor trucks. Good service at a reasonable price. Phone 83.

FOR EXCHANGE

FOR TRADE—160 acre unincumbered ranch on Pacific highway and county road, near Hill; small house and outbuildings; good stock or chicken ranch with plenty of wood and tillable land. Will trade for unincumbered Ashland acreage; prefer no house, but would consider acreage with small house. Eleanor Greer, 199 Granite St. 231tf

FOR RENT.

FOR RENT—Nicely furnished five room apartment. Light and water furnished. Inquire R. W. Conover, Tidings office, or phone 337. 7 evenings or Sunday. 65tf

FOR RENT—Furnished housekeeping apartment, close in. 573 E. Main St. 11-5

GARAGE FOR RENT—New, convenient and well lighted; work bench; easy access; 200 feet from Main St. and service stations. 42 Third St. 72-3

FOR SALE.

SWEET CIDER—Made fresh every day. Two gallons 75c, one gallon 40c, delivered. Phone 9-F-11.

FOR SALE—Winter apples. Phone 10F13. 52-1mo

FOR SALE—Winter apples at \$1 per box. Bring your boxes. W. L. Moore, Bellevue. 63-6

FOR SALE—Dry laurel wood, plenty of heater chunks; 12 inch tier, \$4.50; also 12 inch body fir, \$3.75; 12 inch second growth fir, \$3.25; delivered. 1224 Iowa St. 68-mo

FOR SALE OR RENT—Partly furnished house. 311 Granite. Inquire Nelda Cafe. 12tf

FOR SALE—Reed sulky, in good condition, reasonable. 298 Hargadine St. 12-3

FOR SALE—Brown bungalow, corner Sherman and Iowa. C. H. Nickerson. 72-3

FOR SALE—Tanned White Leghorn hens, at 50 cents each. 14 Roca St. 11-5

Good Insurance

We have not gone out of business! This Agency was established in 1883 and has been built up with the idea of protecting the people of Ashland and vicinity with SOUND INSURANCE. We do not deal in CHEAP INSURANCE; if we considered it safe for the assured, we would have had it to sell at this office years ago. The agent of cheap insurance gets all his stuff is worth. No one can afford to lose even once on fire insurance.

Billings Agency

Established 1883 Real Estate and Real Insurance ASHLAND, OREGON Phone 211 41 E Main St.

LOST.

LOST—Gold wrist watch Reward for return. Zora McCourry, 468 Oak St. 74-4

Local and Personal

Slide on Caves Highway—

Tourists and people out for a Sunday drive who wish to drive as far as the Oregon caves are warned against making the trip, as a slide has occurred just beyond Lake creek bridge, completely blocking further progress. No attempt will be made to remove the obstacle until spring, when men and teams will be put on the work. Further slides are expected before the winter passes.

If you want the best there is in bacon, boiled hams, chipped beef, lard and shortening, get it at Detrick's. We sell for less. 48tf

Thanksgiving Day Thursday—

Have your suit pressed up on the new Hoffman steam press at Orres tailor shop. It brings your old suit out like new. If you try it once, you will come again. 73-2

Cheap insurance is costly at any price. For sound insurance at reasonable rates, see Billings Agency. Established 1883. 34tf

Nightriding Up Again—

Arguments in the motion for continuance in the nightriding cases were heard by Judge F. M. Calkins today. The motion asks that the trials be set for the February term of court. The state offered no objection to the motion according to a decision handed down Saturday. Prejudices growing out of newspaper articles against the klan, and the recent political campaign are the two main contentions.

Ask your grocer for Golden Sheaf Bread. 52tf

There is still time to have that suit cleaned before Thanksgiving. Ladies' work a specialty. Ashland Cleaning and Dyeing Works. Phone 63. 67tf

Christian Workers to Entertain—

Members of the Christian Workers band will hold their annual business meeting at the Christian church Tuesday evening, 7:30 o'clock. Following the business session, the remainder of the evening will be spent in social activities.

LEEDOM'S Tire Hospital will REPAIR your TIRES the RIGHT WAY and give YOU a POSITIVE GUARANTEE of SERVICE or your MONEY REFUNDED. 60tf

Ask your grocer for Golden Sheaf Bread. 52tf

Returns from Portland—

Ural G. Coleman returned from Portland yesterday, after spending a few days in the metropolis. Bill Holmes, who went with him, is expected to return in a few days. Both of the young men were called there for a physical examination relative to receiving compensation from the government. They are both ex-service men.

Fruit cake and mince meat time is here. For citron, orange and lemon peel, raisins, currants, figs, spices, sugar, etc., Detrick's Groceteria sells for less. 48tf

Don't buy a turkey. Eat your Thanksgiving dinner at the Plaza Confectionery. Make reservations now. 70tf

Stanford Is Defeated—

The Blue and Gold of the University of California upheld predictions made prior to the U. of C.-Stanford football game Saturday afternoon, resulting in a 28 to 0 victory over the Cardinals. According to press accounts, Stanford was out-played in every department of the game, but was not out-fought.

Buy your Xmas aprons and handkerchiefs, Masonic hall, Saturday, December 2, afternoon and evening. 71tf

Ashland Granite Monuments, finished to order. S. Penniston, phone 444-Y. 46-26

Simpson on Committee—

Harold Simpson, a senior at the University of Oregon, has been appointed a member of the committee in charge of the one-day Red Cross drive to be held on the campus Tuesday.

NOTICE

Man leaving for Seattle and points en route about December 12, in comfortable 7 passenger car, will take up to 7 passengers to help share expenses. Write for reservations now. Box 455, Dunsmuir, Calif. 69-6

111 cigarettes They are GOOD! 10¢

Leaves for Portland— Mrs. Dr. Poulson, who has been visiting with Mr. and Mrs. Howard Rose for the past few days, left for her home in Portland this morning on the Shasta Limited.

Sweet Cider, made fresh every day, two gallons 75c, one gallon 40c, delivered. Phone 9-F-11.

Better no safe than sorry. See Beaver Realty Co. about your insurance. Phone 68. 287tf

Former Ashland Woman Ill— Word has been received in this city of the serious illness of Mrs. F. E. French, who lived here until quite recently. Mrs. French took a cold at the time they moved to Grants Pass, and this has now developed into ear trouble and it is feared that mastoid trouble will develop.

OYSTERS—Fresh eastern, at the Tavern Cafe. 71tf

A live charge in your magnet at the Fixit Shop. 70tf

Klamath Forms Kiwanis— Klamath Falls has organized a local chapter of the Kiwanis club, about 35 of the representative business men being duly installed in the order. The purposes of the Kiwanis are similar to those of the rotary club. Officers elected were Dr. A. A. Soule, president; Dr. Fred Westerfell, vice-president; W. W. Southwell, secretary, and O. D. Burke, treasurer.

O. E. S. Apron and Handkerchief Bazaar, Masonic Hall. Saturday, December 2, afternoon and evening. 71-tf

Piano Tuning— Now is the time to have your piano tuned. Carl H. Loveland, Studio, 135 East Main. Phone 465. 66tf

Art Club Meets Tonight—

The Ladies' Art club will hold its regular meeting at 8 o'clock this evening, in Pioneer hall. All members are urged to come and spend the evening and enjoy themselves. The hostesses for the evening are Mesdames S. B. McNair, E. H. Bush and J. E. Thornton.

Good reliable dentistry at reasonable prices. Dr. Henry B. Purl, Beaver Bldg. 44tf

C. F. Shepherd just received a carload of pianos and players, most of which are disposed of. Come and select your Christmas piano. Fine new piano as low as \$265. Pianos to rent. Call at 658 Boulevard. 67eod

Visitors from Hill—

Mr. and Mrs. J. W. Moon, of Hill, Calif., were visitors in the city Saturday.

Why not buy her a Singer Sewing Machine for Xmas. \$5 down and \$3 per month will put one in your home. Singer Sewing Machine Co., 10 So. Fir St., Medford.

Ager People Visit—

M. B. Ager, of Ager, Calif., was in the city Saturday, meeting old acquaintances and transacting business.

A fine shipment of dolls has just arrived. Prices below anything in Ashland. Variety store, 89 North Main street. 72tf

Visits in Applegate—

Mrs. Catherine Van Dyke, Miss Margaret Van Dyke, and Miss Esther Kleinhammer were visitors at the Kleinhammer ranch in the Applegate section Sunday.

BAZAAR—Masonic hall, Saturday, December 2, afternoon and evening. 71-tf

Ask your grocer for Golden Sheaf Bread. 52tf

CHILDREN'S COLDS should not be "doed." Treat them externally with VICKS VAPORUB Over 17 Million Jars Used Yearly

RADIO

WHAT INDUCTANCE MEANS EXPLAINED

Its Cause and Effects Are Here Told in Popular Language for the Novice.

When a conductor cuts a magnetic field a voltage is induced in the conductor. The voltage induced depends for its value on the rapidity with which the conductor cuts the magnetic field. The value of the induced voltage is a function of the rate of cutting, not of the field density, etc.

A conductor carrying a current is surrounded by a magnetic field. If the value of the current be decreased, the magnetic field will decrease. In decreasing, the magnetic field about the conductor will cut the conductor and induce in it a voltage. This induced voltage in a conductor caused by a change in the magnetic field, which was produced by the conductor, is called the electro-motive force of self-induction. The direction of the induced voltage due to self-induction is such as to oppose any change.

Looking at the end of a conductor, if applied current is in a direction away from the observer, a reduction in current will produce an e. m. f. of self-induction that will add to this current flow away from the observer, or being the same direction as the applied voltage. An increase in the flow of the current will increase the magnetic field and an e. m. f. of self-induction will be induced that will oppose the flow of current.

Suppose we consider the magnetic field about a conductor carrying an alternating current. The current alternately flows in one direction and

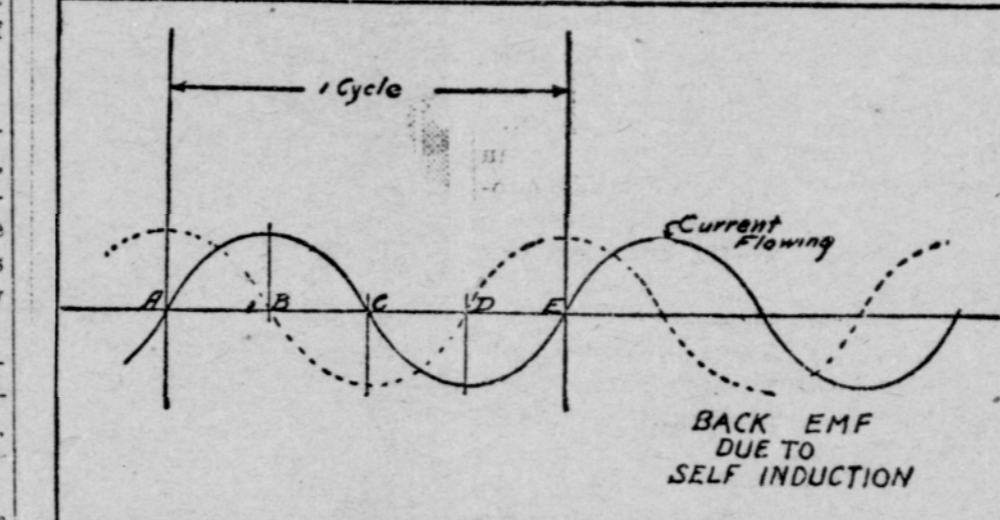


Fig. 1.

then the other direction. Each time the direction of flow of the current changes, the direction of the magnetic field reverses.

When an alternating current flows in a conductor, the current which is set up by the changing magnetic field is also alternating. Suppose that Fig. 1 represents a graph of the current flowing in the conductor. During the first quarter of the cycle, while the current is increasing from zero at A to a maximum value at B, the magnetic field will build up with the current. The inductive back e. m. f., which depends on the rate of change of flow, will be a maximum at A, where the flux is changing most rapidly, and a minimum at B, where change in flow is zero. Similarly during the other three quarters of a cycle the induced e. m. f. due to induction will be a maximum at C and E and a minimum at D.

The dotted curve then in Fig. 1 represents the e. m. f. of self-induction. Note that there is a phase difference of one-quarter of a cycle, or 90 electrical degrees, between the e. m. f. due to induction and the current producing the magnetic field. This action of the conductor having a back e. m. f. induced in it, when a varying current flows through the conductor is called self-induction.

In other words, self-induction may be defined as the property of an electrical circuit that tends to prevent any change in the value of the current flowing through it. The e. m. f. of self-induction is always in such a direction as to prevent any change of current in the circuit. A length of wire wound in the form of a coil called a solenoid has a greater self-induction than the same length of straight. The self-induction of a coil with no iron near the magnetic field is a constant and depends on the physical dimensions of the circuit. The unit of inductance is the henry. An electrical circuit has an inductance of one henry, when a change in the current of one ampere per second will cause a back e. m. f. of one volt.

It has been explained that an ever changing magnetic field surrounds a circuit carrying an alternating current and that this changing magnetic field induces in the circuit a back e. m. f. which opposes any change in the current flowing in the circuit.

If a second electrical circuit is brought within the magnetic field of the first circuit, the second circuit will have a voltage induced in it. The value of the voltage induced in the second electrical circuit will be one volt per 100,000,000 lines of flux cut per second. The direction of the induced voltage in the second circuit will be 180 electrical degrees out of phase with the applied voltage of the first circuit. The phenomenon just described is known as mutual inductance. Self-induction is the reaction of a circuit upon itself. Mutual inductance is the reaction that exists be-

tween two circuits linked by a magnetic field but separated electrically. Examples of both types of inductance are found in both high and low frequencies. In a radiophone transmitter the filter reactances are examples of low frequency self-induction. The filament transformer is an example of mutual inductance. The primary of the filament transformer sets up a magnetic field that is cut by the conductor that forms the secondary of the transformer. In radio frequency circuits a tuning coil depends for its action upon self-induction. The operation of a loose coupler depends upon mutual induction for the transfer of energy from the primary or antenna circuit to the secondary tuned circuit to which the rectifying apparatus is connected.

"Skin effect" is due to self-induction. In a conductor carrying direct current, resistance drop, which can be considered as a back voltage, is constant over the entire cross section of the conductor. The applied voltage then is opposed at any point on the cross section of a conductor by the same back voltage and hence the current flowing distributes itself evenly over the cross section of the conductor.

This is not true in conductors carrying alternating current. There are two voltages that oppose the flow of alternating current in a conductor. First, the back voltage due to resistance, and second, the back voltage induced by self-induction. The magnetic field surrounding the conductor will be strongest at the center of the conductor and weaker at the surface of the conductor. This will cause the induced back e. m. f. to be largest at the center and smallest at the surface of the conductor. Naturally the density of the circuit that flows will be inversely proportional to this opposing e. m. f. or the least current will flow at the center and the greater current will flow along the surface.

As the frequency of the current is increased, the "skin effect," as it is called, becomes more and more pronounced. Finally at radio frequencies

NAMED FOR MRS. HARDING



Here is a new variety of chrysanthemum named for Mrs. Harding, wife of the President, and exhibited at the show of the Department of Agriculture in Washington.

Remember December 5 to 8. Winter Fair.

INTERURBAN AUTOCAR CO.

(Effective January 1, 1922) Daily (Except Sunday)

Table with columns for LV. MEDFORD and LV. ASHLAND, listing departure times for various routes.

Sunday Schedule

Leave Medford for Ashland and Ashland for Medford every hour on the hour from 9 a. m. to 5 p. m.; then 6:30 p. m. and 9:30 p. m. Ashland waiting room—East Side Pharmacy.

ASHLAND-ROSEBURG STAGE

Daily (Except Sunday)

LV. ASHLAND LV. ROSEBURG 1:00 p. m. 1:00 p. m. Travel by stage; shortest route by 20 miles; one of Oregon's most scenic trips. Fare—Ashland-Roseburg, \$4.60; Medford-Roseburg, \$4.15; Grants Pass-Roseburg, \$3.00.

MEDFORD-GRANTS PASS

Daily (Except Sunday)

LV. MEDFORD LV. GRANTS PASS 10:00 a. m. 7:30 a. m. 2:00 p. m. 1:00 p. m. 5:00 p. m. 5:00 p. m. Sunday Only

10:00 a. m. 10:00 a. m. 4:30 p. m. 4:30 p. m. Grants Pass waiting room—The Bonbonniere, phone 160. Office and waiting room—No. 5



PUMPKIN AND MINCE PIES FOR THANKSGIVING

have a large share of our best attention long before the day comes 'round. That these pastries will be fit for the feast—sweet, aromatic, "tasty," delicious, wholesome and altogether satisfying, our reputation assures.

LITHIA BAKERY

A CARLOAD OF FENCING JUST IN—

I can save you \$1.90 on a 20 rod roll of fencing against any catalog house prices. Now is the time to buy. Fencing of every description. Plows and Harrows. New and used Sewing Machines always on hand. The White Sewing Machine is king of all.

PEEL'S CORNER

Effective Reliable

ASHLAND REALTY CO.

Opposite City Hall Business Chances Insurance Real Estate

W. A. SHELL

BARBER

Safety blades resharpened like new. Single bit, 30c doz. Double bit, 60c doz.

Children's Work A Specialty

Throwing the Clock Out the Window and Carrying Down the Feather Bed

In the case of fire, no one can positively say what he would do. Everyone, however, can make certain that their valuable papers, their deeds, notes, policies, jewelry, stocks, bonds and the like are always protected by renting a box in our Safe Deposit Vault.

The Citizens Bank of Ashland Ashland, Oregon

In Stock Duplicating Sales Books WITH CARBON Two Books 25c Per Dozen \$1.25 Two Dozen \$2.25 One Hundred \$8.00 ASHLAND TIDINGS